

**WEST****End of Result Set****Generate Collection**

L1: Entry 13 of 13

File: DWPI

Jan 23, 1996

DERWENT-ACC-NO: 1993-101195  
DERWENT-WEEK: 199610  
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TITLE: Raster display map generation and graphics - utilising vector database to create vector map aligned with raster map for superimposition of selected address data from object database

INVENTOR: CAVO, V N; PISZCZ, A T ; RICCARDI, J A ; SAYLOR, C H M

PATENT-ASSIGNEE: NIAGARA MOHAWK POWER CORP (NIAGN)

PRIORITY-DATA: 1991US-0758875 (September 10, 1991)

**PATENT-FAMILY:**

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 5487139 A	January 23, 1996	N/A	010	G06F015/00
WO 9305467 A1	March 18, 1993	N/A	033	G06F003/00
AU 9226428 A	April 5, 1993	N/A	000	G06F003/00

DESIGNATED-STATES: AT AU BB BG BR CA CH CS DE DK ES FI GB HU JP KP KR LK LU MG MN MW NL  
NO PL RO RU SD SE AT BE CH DE DK ES FR GB GR IE IT LU MC NL OA SE

CITED-DOCUMENTS:US 4616327; US 4843569 ; US 5008854 ; US 5060171

**APPLICATION-DATA:**

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US 5487139A	September 10, 1991	1991US-0758875	N/A
WO 9305467A1	September 10, 1992	1992WO-US07669	N/A
AU 9226428A	September 10, 1992	1992AU-0026428	N/A
AU 9226428A		WO 9305467	Based on

INT-CL (IPC): G06F 3/00; G06F 15/00

ABSTRACTED-PUB-NO: US 5487139A

**BASIC-ABSTRACT:**

The method employs an existing map in conjunction with an object database holding data on addresses located within the area of the map. A raster map corresponding to the existing map is displayed, together with a vector map containing information characteristic to the depicted raster map territory.

Corresponding areas of the raster map and vector map are aligned to provide an X-Y coordinate system. The object database information is geocoded with X-Y coordinates relative to the vector database, to identify addresses within the depicted area. The raster map is displayed together with graphical data relating to selected addresses.

USE/ADVANTAGE - By utility company where addresses are customer residences within geographical area. Provides streamlined operation at coordination centre of utility.

ABSTRACTED-PUB-NO: WO 9305467A

**EQUIVALENT-ABSTRACTS:**

A method for generating a raster display map having expandable graphic representations, said generating method employing an existing map and an object database containing information on addresses located within the territory represented by the existing map,

said generating method comprising the steps of:

- (a) obtaining and displaying a raster map corresponding to said existing map;
- (b) providing a preexisting vector database having information characteristic to the territory represented by the raster map;
- (c) displaying a vector map from said vector database, said displayed vector map containing said information characteristic to the territory depicted in said raster map;
- (d) aligning corresponding areas of said raster map and said vector map;
- (e) geocoding said object database information with X,Y coordinates relative to said vector database, at least some of said X,Y coordinates identifying addresses within the areas depicted by said aligned raster and vector maps; and
- (f) displaying said raster map and a graphical representation of an address located within the area represented by the raster map, said graphical representation being expandable to provide object database information on said address.

CHOSEN-DRAWING: Dwg.1/4 Dwg.1/4

DERWENT-CLASS: T01 T04

EPI-CODES: T01-C04; T01-J05B4; T04-H;

Services, Inc., 1988.

"Digital Matrix Services Maps Out A Solution for C. H. Fenstermaker & Associates," Issue 10, View (A Data General Quarterly) pp. 18 & 19, 1989.

"DiGiCAD.TM./InFoCAD.TM. Digital Matrix Services, Inc.," F-M Automation Newsletter, pp. 2-8, Oct., 1988.

"ARC/INFO Image Integrator, Another Step Forward in GIS Technology". . . , Environmental Systems Research Institute, Inc., 1990.

"Integration of Geographic Information Technologies, Arc News," Environmental Systems Research Institute, Inc., vol. 11, No. 1, 1989.

ART-UNIT: 242

PRIMARY-EXAMINER: Nguyen; Phu K.

ATTY-AGENT-FIRM: Heslin & Rothenberg

ABSTRACT:

A vector database is used to create a vector map which is aligned with a raster map produced from an existing hand-drawn map. The aligned maps provide an X,Y coordinate basis for the locating of specific addresses within the territory represented by the raster map. The technique is particularly applicable to use by a utility company wherein the addresses identified are customer residences, each residence being coded with specific X,Y coordinates relative to the vector database. Relevant additional customer information is indexed through a graphical representation of the address which when displayed appears on the raster map at the appropriate X,Y coordinates relative to the vector map. Additional specific details of the method and system are presented.

21 Claims, 4 Drawing figures

**WEST**☐ **Generate Collection**

L3: Entry 6 of 9

File: USPT

Mar 16, 1999

US-PAT-NO: 5884216

DOCUMENT-IDENTIFIER: US 5884216 A

TITLE: Method and apparatus for tracking vehicle location

DATE-ISSUED: March 16, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Shah; Mukesh Chamanlal	San Jose	CA	N/A	N/A
Prabhakaran; Sanjiv	San Jose	CA	N/A	N/A

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Mobile Information System, Inc.	Sunnyvale	CA	N/A	N/A	02

APPL-NO: 8/ 954301

DATE FILED: October 20, 1997

## PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATION This is a continuation of application No. 08/433,063 filed May 17, 1995, now U.S. Pat. No. 5,758,313, which is a continuation-in-part of application Ser. No. 07/961,736, now U.S. Pat. No. 5,428,546, filed Oct. 16, 1992, in the name of the present assignee. This application is also related to application Ser. No. 08/443,062, filed May 17, 1995, now U.S. Pat. No. 5,636,122, in the name of the present assignee.

INT-CL: [6] G08G 1/13, G01S 7/10, G06F 17/60

US-CL-ISSUED: 701/207; 340/995

US-CL-CURRENT: 701/207; 340/995

FIELD-OF-SEARCH: 701/207, 701/300, 701/219, 701/208, 701/213, 342/357, 342/457, 340/990, 340/995

## PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

☐ **Search Selected**☐ **Search ALL**

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>3845289</u>	October 1974	French	235/151.2
<input type="checkbox"/>	<u>4360876</u>	November 1982	Girault et al.	364/449
<input type="checkbox"/>	<u>4513377</u>	April 1985	Hasebe et al.	364/449
<input type="checkbox"/>	<u>4570227</u>	February 1986	Tachi et al.	364/444
<input type="checkbox"/>	<u>4608656</u>	August 1986	Tanaka et al.	364/449
<input type="checkbox"/>	<u>4611293</u>	September 1986	Hatch et al.	364/571
<input type="checkbox"/>	<u>4613913</u>	September 1986	Phillips	360/51
<input type="checkbox"/>	<u>4630209</u>	December 1986	Saito et al.	364/444
<input type="checkbox"/>	<u>4660037</u>	April 1987	Nakamura et al.	340/990
<input type="checkbox"/>	<u>4672565</u>	June 1987	Kuno et al.	364/571

<input type="checkbox"/> <u>4673878</u>	June 1987	Tsushima et al.	324/226
<input type="checkbox"/> <u>4675676</u>	June 1987	Takanabe et al.	340/995
<input type="checkbox"/> <u>4723218</u>	February 1988	Hasebe et al.	364/449
<input type="checkbox"/> <u>4734863</u>	March 1988	Honey et al.	364/449
<input type="checkbox"/> <u>4737916</u>	April 1988	Ogawa et al.	364/443
<input type="checkbox"/> <u>4751512</u>	June 1988	Longaker	342/357
<input type="checkbox"/> <u>4782447</u>	November 1988	Ueno et al.	364/449
<input type="checkbox"/> <u>4788645</u>	November 1988	Zavoli et al.	364/449
<input type="checkbox"/> <u>4796191</u>	January 1989	Honey et al.	364/450
<input type="checkbox"/> <u>4797841</u>	January 1989	Hatch	364/571.04
<input type="checkbox"/> <u>4831563</u>	May 1989	Ando et al.	364/571.05
<input type="checkbox"/> <u>4862398</u>	August 1989	Shimizu et al.	364/571.05
<input type="checkbox"/> <u>4873513</u>	October 1989	Soults et al.	340/723
<input type="checkbox"/> <u>4914605</u>	April 1990	Loughmiller, jr. et al.	364/424.01
<input type="checkbox"/> <u>4918609</u>	April 1990	Yamawaki	364/449
<input type="checkbox"/> <u>4924402</u>	May 1990	Ando et al.	364/449
<input type="checkbox"/> <u>4926336</u>	May 1990	Yamada	364/444
<input type="checkbox"/> <u>4937753</u>	June 1990	Yamada	364/449
<input type="checkbox"/> <u>4954959</u>	September 1990	Moroto et al.	364/449
<input type="checkbox"/> <u>4964052</u>	October 1990	Ohe	364/449
<input type="checkbox"/> <u>4970652</u>	November 1990	Nagashima	364/449
<input type="checkbox"/> <u>4982332</u>	January 1991	Saito et al.	364/449
<input type="checkbox"/> <u>4984168</u>	January 1991	Neukrichner et al.	364/449
<input type="checkbox"/> <u>4989151</u>	January 1991	Nuimura	364/449
<input type="checkbox"/> <u>4992947</u>	January 1991	Nuimura et al.	364/449
<input type="checkbox"/> <u>4996645</u>	February 1991	Schneyderberg Van der Zon	364/449
<input type="checkbox"/> <u>4999783</u>	March 1991	Tenomoku et al.	364/450
<input type="checkbox"/> <u>5003317</u>	March 1991	Gray et al.	342/357
<input type="checkbox"/> <u>5040122</u>	August 1991	Neukirchner et al.	364/449
<input type="checkbox"/> <u>5046011</u>	September 1991	Kakihara et al.	364/449
<input type="checkbox"/> <u>5060162</u>	October 1991	Ueyama et al.	364/449
<input type="checkbox"/> <u>5067081</u>	November 1991	Person	364/444
<input type="checkbox"/> <u>5109399</u>	April 1992	Thompson	379/45
<input type="checkbox"/> <u>5122959</u>	June 1992	Nathanson et al.	364/436
<input type="checkbox"/> <u>5140532</u>	August 1992	Beckwith, Jr. et al.	395/101
<input type="checkbox"/> <u>5155689</u>	October 1992	Wortham	364/460
<input type="checkbox"/> <u>5177685</u>	January 1993	Davis et al.	364/443
<input type="checkbox"/> <u>5222690</u>	June 1993	Jeffords	244/1R
<input type="checkbox"/> <u>5243530</u>	September 1993	Stanifer et al.	364/452
<input type="checkbox"/> <u>5272638</u>	December 1993	Martin et al.	364/444

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L1: Entry 7 of 13

File: USPT

Dec 8, 1998

US-PAT-NO: 5848373

DOCUMENT-IDENTIFIER: US 5848373 A

TITLE: Computer aided map location system

DATE-ISSUED: December 8, 1998

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
DeLorme; David M.	Cumberland	ME	N/A	N/A
Gray; Keith A.	Dresden	ME	N/A	N/A

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
DeLorme Publishing Company	Yarmouth	ME	N/A	N/A	02

APPL-NO: 8/ 896712

DATE FILED: July 18, 1997

## PARENT-CASE:

This is a continuation of application Ser. No. 265,327, filed Jun. 24, 1994, now abandoned.

INT-CL: [6] G06F 165/00, G01S 5/00

US-CL-ISSUED: 701/200; 701/208, 701/212, 340/998, 340/990, 340/995, 342/357

US-CL-CURRENT: 701/200; 340/990, 340/995, 342/357.13, 701/208, 701/212

FIELD-OF-SEARCH: 701/207, 701/208, 701/210, 701/212, 701/216, 701/217, 701/300, 340/998, 340/990, 340/995, 342/357, 342/457

## PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected

Search ALL

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/> 4543572	September 1985	Tanaka et al.	340/723
<input type="checkbox"/> 4675676	June 1987	Takanabe et al.	340/995
<input type="checkbox"/> 4689747	August 1987	Kurose et al.	364/449
<input type="checkbox"/> 4791572	December 1988	Green, III et al.	364/449
<input type="checkbox"/> 4796189	January 1989	Nakayama et al.	364/449
<input type="checkbox"/> 4807157	February 1989	Fukushima et al.	364/521
<input type="checkbox"/> 4862374	August 1989	Ziemann	364/449
<input type="checkbox"/> 4891761	January 1990	Gray et al.	364/452
<input type="checkbox"/> 4972319	November 1990	DeLorme	364/419
<input type="checkbox"/> 4984168	January 1991	Neukrichner	364/449
<input type="checkbox"/> 4998752	March 1991	Judson	283/34
<input type="checkbox"/> 5030117	July 1991	DeLorme	434/130
<input type="checkbox"/> 5059970	October 1991	Raubenheimer et al.	342/451
<input type="checkbox"/> 5067081	November 1991	Person	364/444
<input type="checkbox"/> 5068654	November 1991	Husher	340/903
<input type="checkbox"/> 5089816	February 1992	Holmes, Jr.	340/995
<input type="checkbox"/> 5204817	April 1993	Yoshida	364/449
<input type="checkbox"/> 5212643	May 1993	Yoshida	701/212
<input type="checkbox"/> 5214757	May 1993	Mauney et al.	395/161
<input type="checkbox"/> 5268844	December 1993	Carver et al.	364/443
<input type="checkbox"/> 5289195	February 1994	Inoue	342/457
<input type="checkbox"/> 5337242	August 1994	Yamamoto et al.	364/449
<input type="checkbox"/> 5359527	October 1994	Takanabe et al.	364/449
<input type="checkbox"/> 5396254	March 1995	Toshiyuki	342/357
<input type="checkbox"/> 5422814	June 1995	Sprague et al.	364/449
<input type="checkbox"/> 5475387	December 1995	Matsumoto	340/990
<input type="checkbox"/> 5559511	September 1996	Ito et al.	701/201

ART-UNIT: 364

PRIMARY-EXAMINER: Nguyen; Tan Q.

ATTY-AGENT-FIRM: Atwood; Pierce

## ABSTRACT:

A computer aided map location system (CAMLs) provides correlation and coordination of spatially related data between a computer (PDA/PC/EC) and a set of printed maps typically printed on paper depicting surface features at desired levels of detail. A first set of constant scale printed maps substantially coincides with or is overprinted with equal area grid quadrangles of a first scale grid. The first scale grid quadrangles are identified by a first set of unique names. The PDA/PC/EC has a computer display or other computer output, a first database, and display subsystem. The first database includes the first set of unique names of the grid quadrangles of the first scale grid. The boundary lines of the respective first scale grid quadrangles are identified in the first database by latitude and longitude location. The display subsystem causes the display of a selected grid quadrangle or gridname on the PDA/PC/EC display in response to a user query. The displayed grid quadrangle or gridname is correlated with a grid quadrangle of a printed map from the first set of printed maps. The PDA/PC/EC may have access to a second database or multiple databases of latitude and longitude locatable objects

-- (loc/objects) for display of selected grid quadrangles. Alternatively or in addition the PDA/PC/EC may incorporate a user location system such as a GPS location system for displaying the location and route of the CAMLS user on the display. Multiple level scales of grids and corresponding multiple sets of maps at the different scales are available. Communications links are provided between CAMLS computers and CAMLS users in various combinations.

19 Claims, 35 Drawing figures



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L1: Entry 5 of 13

File: USPT

Sep 7, 1999

US-PAT-NO: 5948040

DOCUMENT-IDENTIFIER: US 5948040 A

TITLE: Travel reservation information and planning system

DATE-ISSUED: September 7, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
DeLorme; David M.	Yarmouth	ME	N/A	N/A
Gray; Keith A.	Dresden	ME	N/A	N/A
Ferguson; T. Angus	Portland	ME	N/A	N/A

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
DeLorme Publishing Co.	Yarmouth	ME	N/A	N/A	02

APPL-NO: 8/ 797471

DATE FILED: February 6, 1997

## PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATIONS This patent application is a continuation-in-part (CIP) of the David M. DeLorme et al. U.S. patent application Ser. No. 08/661,600 filed Jun. 11, 1996, for COMPUTER AIDED ROUTING AND POSITIONING SYSTEM, now U.S. Pat. No. 5,802,492 which is a CIP of the David M. DeLorme et al. U.S. patent application Ser. No. 08/381,214 filed Jan. 31, 1995 for COMPUTER AIDED ROUTING SYSTEM, now U.S. Pat. No. 5,559,707, issued Sep. 24, 1996, which is a CIP of the David M. DeLorme et al. U.S. patent application Ser. No. 08/265,327 filed Jun. 24, 1994 for COMPUTER AIDED MAP LOCATION SYSTEM now abandoned. This patent application is also a CIP of the Keith A. Gray U.S. patent application Ser. No. 08/521,828 filed on Aug. 31, 1995, for COMPUTERIZED ADDRESS LOCATION AND COMMUNICATION SYSTEM now abandoned. All of the cross-referenced applications have a common assignee who is the assignee of the present application. The contents of these related patent applications are incorporated herein by reference.

INT-CL: [6] G06F 19/00, G01C 21/00

US-CL-ISSUED: 701/201; 701/208, 701/211, 340/990, 705/5

US-CL-CURRENT: 701/201; 340/990, 701/208, 701/211, 705/5

FIELD-OF-SEARCH: 701/201, 701/202, 701/207, 701/208, 701/209, 701/211, 701/212, 701/213, 705/5, 705/6, 340/988, 340/989, 340/990, 340/995

## PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected

Search ALL

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/> 4359631	November 1982	Lockwood et al.	360/12
<input type="checkbox"/> 4862357	August 1989	Ahlstrom et al.	705/6
<input type="checkbox"/> 4926336	May 1990	Yamada	364/444
<input type="checkbox"/> 5021953	June 1991	Webber et al.	705/6
<input type="checkbox"/> 5172321	December 1992	Ghaem et al.	701/202
<input type="checkbox"/> 5191523	March 1993	Whitesage	705/6
<input type="checkbox"/> 5208756	May 1993	Song	364/449
<input type="checkbox"/> 5231584	July 1993	Nimura et al.	364/444
<input type="checkbox"/> 5237499	August 1993	Garback	705/5
<input type="checkbox"/> 5243528	September 1993	Lefebvre	701/211
<input type="checkbox"/> 5253166	October 1993	Dettebach et al.	705/5
<input type="checkbox"/> 5272638	December 1993	Martin et al.	701/202
<input type="checkbox"/> 5331546	July 1994	Webber et al.	705/6
<input type="checkbox"/> 5353034	October 1994	Sato et al.	340/988
<input type="checkbox"/> 5359527	October 1994	Takanabe et al.	364/449
<input type="checkbox"/> 5369588	November 1994	Hayami et al.	701/209
<input type="checkbox"/> 5422809	June 1995	Griffin et al.	705/5
<input type="checkbox"/> 5444618	August 1995	Seki et al.	364/420
<input type="checkbox"/> 5519619	May 1996	Seda	701/201
<input type="checkbox"/> 5537324	July 1996	Nimura et al.	364/449
<input type="checkbox"/> 5587911	December 1996	Asano et al.	364/444.2
<input type="checkbox"/> 5724520	March 1998	Goheen	705/5

## OTHER PUBLICATIONS

Makulowich, John, "Traveling by Virtual Reservation," Washington Technology, Jan. 23, 1997, p. 42.  
 Knecht, Bruce, G., "Microsoft Puts Newspapers in Highanxiety.com," The Wall Street Journal, Jul. 15, 1996, pp. B1, B10.  
 "InforTravel Expands Service," Business Geographics, vol. 4, No. 6, Jun., 1996, p. 13.  
 DelRosso, Laura, "Firm Customizes Internet Res Link," Travel Weekly, vol. 55, No. 26, Apr. 1, 1996, pp. 43-44, 47.  
 "Casto Travel's Resource Library," www.casto.com.  
 "Sunnyside Computing, Inc.," www.itn.net.

ART-UNIT: 361

PRIMARY-EXAMINER: Nguyen; Tan

ATTY-AGENT-FIRM: Atwood; Pierce Caseiro; Chris A.

## ABSTRACT:

Computerized travel reservation information and planning system that generates "map ticket" output in various media, for guidance and transactions en route. Such print or electronic documents can include bar or alphanumeric codes for automated recognition and/or access. WHERE?, WHO/WHAT?, WHEN? and HOW? menus enable flexible user inquiries accessing selectable geographic, topical, temporal and transactional data records and relational processing. Sub-menus provide further capabilities: e.g. routing, topical searching; searches of events calendars, almanacs, appointment books, related itinerary scheduling; trip budgeting issues, plus travel arrangement availabilities or other goods/services offers. Online communications links access updated or supplemental information on places, times, topics and other provider goods/service offers. Online computer-aided routing system enables input of selectable travel origin, destination, and waypoints to compute travel routes, available transportation services, costs, options, and schedules. A point-of-interest database lets users pick types of attractions or

accommodations within a user selected region around routes of travel. Users engage in an iterative planning process, revising or editing travel plans, previewing travelogs of alternate routes, selecting point of interest parameters, comparing times and costs of transportation options, in order to achieve a satisfactory travel plan. The system provides printed or electronic output that may include any one or more of text itinerary, ordered set of travel maps, customized collection of information on points of interest information and a selected array of valid reservation confirmations, tickets and/or discount coupons coded with elements for automated recognition and processing. Mobile users, including GPS-linked users, can access the system via wireless communication units.

80 Claims, 16 Drawing figures

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L1: Entry 9 of 13

File: USPT

Sep 1, 1998

US-PAT-NO: 5802492

DOCUMENT-IDENTIFIER: US 5802492 A

TITLE: Computer aided routing and positioning system

DATE-ISSUED: September 1, 1998

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
DeLorme; David M.	Yarmouth	ME	N/A	N/A
Gray; Keith A.	Dresden	ME	N/A	N/A

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
DeLorme Publishing Company, Inc.	Yarmouth	ME	N/A	N/A	02

APPL-NO: 8/ 661600

DATE FILED: June 11, 1996

## PARENT-CASE:

CROSS REFERENCE TO RELATED PATENT APPLICATION This patent application is a continuation-in-part (CIP) of the David M. DeLorme et al U.S. patent application Ser. No. 08/381,214 filed Jan. 31, 1995, now U.S. Pat. No. 5,559,707 for COMPUTER AIDED ROUTING SYSTEM which is a CIP of the David M. DeLorme et al U.S. patent application Ser. No. 08/265,327 filed Jun. 24, 1994, now abandoned for COMPUTER AIDED MAP LOCATION SYSTEM and the contents of these related patent applications are incorporated herein by reference.

INT-CL: [6] G01C 21/00, G08G 1/123

US-CL-ISSUED: 701/200; 701/201, 701/208, 701/211, 701/213, 340/990, 340/995

US-CL-CURRENT: 455/456; 340/990, 340/995, 701/201, 701/208, 701/211, 701/213

FIELD-OF-SEARCH: 364/443, 364/444.1, 364/444.2, 364/449.2, 364/449.3, 364/449.4, 364/449.5, 364/449.6, 364/449.7, 340/990, 340/995, 340/991, 340/993, 342/357, 342/457

## PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

Search Selected

Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>5208756</u>	May 1993	Song	364/449.1
<input type="checkbox"/>	<u>5543789</u>	August 1996	Behr et al.	340/995
<input type="checkbox"/>	<u>5559707</u>	September 1996	DeLorme et al.	364/443

ART-UNIT: 364

PRIMARY-EXAMINER: Nguyen; Tan Q.

ATTY-AGENT-FIRM: Caseiro; Chris A. Bohan; Thomas L.

## ABSTRACT:

A Computer Aided Routing and Positioning System (CARPS) determines a route along selected waypoints that include a travel origin and a travel destination and intermediate waypoints therebetween. The selected waypoints may be uploaded to or downloaded from

various geocoding devices that utilize the Global Positioning System (GPS). A CARPS database incorporates travel information selected from a range of multimedia sources about the transportation routes, waypoints, and geographically locatable points of interest (POIs) selected by the user along the travel route. The CARPS software permits user selection of specified POI types within a user-defined region of interest and user selection of particular POIs from the selected types within the region of interest. The transportation routes, waypoints, POIs and region of interest are identifiable in the computer by coordinate locations of a selected geographical coordinate system. The CARPS software is constructed to present a user-customized travelog for preview on the computer display of the user-defined travel route. The travel planner can preview on the computer display a multimedia travelog particularly customized for the user-defined travel route including multimedia information on the transportation routes, waypoints, and POIs selected by the user. The user can engage in an iterative trip planning process of revising the route and previewing travelogs of revised travel routes until a satisfactory travel route is determined. Hardcopies of customized travel maps of the user-defined travel route can be used in conjunction with a GPS device which has been uploaded with selected waypoint data.

50 Claims, 35 Drawing figures

**WEST**

Generate Collection

L1: Entry 10 of 13

File: USPT

Sep 24, 1996

US-PAT-NO: 5559707

DOCUMENT-IDENTIFIER: US 5559707 A

TITLE: Computer aided routing system

DATE-ISSUED: September 24, 1996

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
DeLorme; David M.	Cumberland	ME	N/A	N/A
Gray; Keith A.	Dresden	ME	N/A	N/A

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
DeLorme Publishing Company	Freeport	ME	N/A	N/A	02

APPL-NO: 8/ 381214

DATE FILED: January 31, 1995

## PARENT-CASE:

CROSS REFERENCE TO RELATED PATENT APPLICATION This patent application is a continuation-in-part (CIP) of the David M. DeLorme et al U.S. patent application Ser. No. 08/265,327 filed Jun. 24, 1994 for COMPUTER AIDED MAP LOCATION SYSTEM and the contents of this related patent application are incorporated herein by reference.

INT-CL: [6] G01C 21/00, G08G 1/123

US-CL-ISSUED: 364/443; 364/424.02, 364/444, 364/449, 340/990, 340/995

US-CL-CURRENT: 701/200; 340/990, 340/995, 701/23, 701/82

FIELD-OF-SEARCH: 364/443, 444, 448, 424.02, 364/449, 364/407, 342/357, 340/990, 340/995

## PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

Search Selected

Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>4926336</u>	May 1990	Yamada	364/444
<input type="checkbox"/>	<u>4939662</u>	July 1990	Nimura et al.	364/449
<input type="checkbox"/>	<u>5231584</u>	July 1993	Nimura et al.	364/444
<input type="checkbox"/>	<u>5270937</u>	December 1993	Link et al.	364/449
<input type="checkbox"/>	<u>5353034</u>	October 1994	Sato et al.	342/457
<input type="checkbox"/>	<u>5377113</u>	December 1994	Shibazaki et al.	364/449

## OTHER PUBLICATIONS

Sciso, "Five Desktop Travel Guides Help You Plan Your Vacation", PC Magazine, Nov. 1993.  
Software Product Specification, "Automap Road Atlas for Window (V. 3.0.)", Automap, Inc, 1993.

User Manual of Randy Mc.Nally Trip Maker for Window.

ART-UNIT: 234

PRIMARY-EXAMINER: Teska; Kevin J.  
ASSISTANT-EXAMINER: Nguyen; Tan  
ATTY-AGENT-FIRM: Kane, Jr.; Daniel H. Caseiro; Chris A. Bohan; Thomas L.

## ABSTRACT:

A computer aided routing system (CARS) determines a travel route between a user selected travel origin and travel destination following user selected waypoints along the way. A CARS database incorporates travel information selected from a range of multimedia sources about the transportation routes, waypoints, and geographically locatable points of interest (POIs) selected by the user along the travel route. The CARS software permits user selection of specified POI types within a user defined region of interest and user selection of particular POIs from the selected types within the region of interest. The transportation routes, waypoints, POIs and region of interest are identified in the computer by coordinate locations of a selected geographical coordinate system. The CARS software is constructed to present a user customized travelog for preview on the computer display of the user defined travel route. The travel planner can preview on the computer display a multimedia travelog particularly customized for the user defined travel route including multimedia information on the transportation routes, waypoints, and POIs selected by the user. The user can engage in an iterative trip planning process of revising the route and previewing travelogs of revised travel routes until a satisfactory travel route is determined.

59 Claims, 35 Drawing figures

**WEST**☐ Generate Collection

L2: Entry 1 of 3

File: USPT

Jan 23, 1996

US-PAT-NO: 5487139

DOCUMENT-IDENTIFIER: US 5487139 A

TITLE: Method and system for generating a raster display having expandable graphic representations

DATE-ISSUED: January 23, 1996

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Saylor; Charles H. M.	Manlius	NY	N/A	N/A
Cavo; Vincent N.	Utica	NY	N/A	N/A
Riccardi, Jr.; James A.	Yorkville	NY	N/A	N/A
Piszczy; Alan T.	New York Mills	NY	N/A	N/A

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Niagara Mohawk Power Corporation	Syracuse	NY	N/A	N/A	02

APPL-NO: 7/ 758875

DATE FILED: September 10, 1991

INT-CL: [6] G06F 15/00

US-CL-ISSUED: 395/135

US-CL-CURRENT: 345/435

FIELD-OF-SEARCH: 395/133, 395/135, 395/155, 395/161, 340/747, 340/750, 340/732, 340/734, 345/114, 345/120, 345/121, 345/118

PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

Search Selected

Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>4086632</u>	April 1978	Lions	364/444
<input type="checkbox"/>	<u>4484192</u>	November 1984	Seitz et al.	340/995
<input type="checkbox"/>	<u>4660037</u>	April 1987	Nakamura	340/990
<input type="checkbox"/>	<u>4816208</u>	March 1989	Woods et al.	376/259
<input type="checkbox"/>	<u>4843569</u>	June 1989	Sawada et al.	395/133
<input type="checkbox"/>	<u>4870406</u>	September 1989	Gupta et al.	340/70
<input type="checkbox"/>	<u>4916624</u>	April 1990	Collins et al.	364/470
<input type="checkbox"/>	<u>4916634</u>	April 1990	Collins et al.	364/513
<input type="checkbox"/>	<u>4926344</u>	May 1990	Collins et al.	364/513
<input type="checkbox"/>	<u>4970682</u>	November 1990	Beckwith, Jr. et al.	364/900

## OTHER PUBLICATIONS

InFoCAD.TM., "A Superset of DiGiCAD with DiGiLAND for GIS Applications." Digital Matrix



<input type="checkbox"/> 5283743	February 1994	Odagawa	364/457
<input type="checkbox"/> 5287297	February 1994	Ihara et al.	364/571.02
<input type="checkbox"/> 5297049	March 1994	Gurmu et al.	364/436
<input type="checkbox"/> 5297050	March 1994	Ichimura et al.	364/444
<input type="checkbox"/> 5311195	May 1994	Mathis et al.	342/357
<input type="checkbox"/> 5334974	August 1994	Simms et al.	340/990
<input type="checkbox"/> 5428546	June 1995	Shah et al.	364/449
<input type="checkbox"/> 5434788	July 1995	Seymour et al.	364/449
<input type="checkbox"/> 5470233	November 1995	Fruchterman et al.	434/112
<input type="checkbox"/> 5485161	January 1996	Vaughn	342/357
<input type="checkbox"/> 5487139	January 1996	Saylor et al.	395/135
<input type="checkbox"/> 5604676	February 1997	Penzias	364/464.27

## OTHER PUBLICATIONS

Allen, David P., "Here Be Dragons . . . " CD-Rom EndUser, Mar. 1990.  
R.L. French, "MAP Matching Origins Approaches and Applications," Robert L. French & Associates, 3815 Lisbon St., Ste. 201, Fort Worth, Texas 76107, pp. 91-116, Date unknown.

Sena, Michael L., "Computer-Aided Dispatching," Computer Graphics World, PennWell (pub.), May 1990.

ART-UNIT: 364

PRIMARY-EXAMINER: Zanelli; Michael

ATTY-AGENT-FIRM: Townsend and Townsend and Crew LLP

## ABSTRACT:

A method computer aided dispatching. The present method includes providing a display 510 having a first display segment 530. The first display segment 530 includes a digitized representation of a selected area from a raster map, intelligent area data superimposed upon the selected area to provide intelligence, and a user locatable mark 520. The user locatable mark 520 defines a mobile unit position based upon a first value and a second value. The present method also includes using a dispatch system 811 operably coupled to the display. The dispatch system 811 includes order data from customers. A portion of the order data is transferred from a data acquisition 801, 808 device to the mobile unit 610.

25 Claims, 14 Drawing figures

**WEST**

Generate Collection

L13: Entry 6 of 8

File: USPT

Apr 13, 1993

US-PAT-NO: 5202829

DOCUMENT-IDENTIFIER: US 5202829 A

TITLE: Exploration system and method for high-accuracy and high-confidence level relative position and velocity determinations

DATE-ISSUED: April 13, 1993

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Geier; George J.	Santa Clara	CA	N/A	N/A

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Trimble Navigation Limited	Sunnyvale	CA	N/A	N/A	02

APPL-NO: 7/ 713438

DATE FILED: June 10, 1991

INT-CL: [5] G01S 5/02

US-CL-ISSUED: 364/449; 364/459, 342/357, 342/457

US-CL-CURRENT: 701/215; 342/357.08, 342/357.09, 342/457, 701/226

FIELD-OF-SEARCH: 364/443, 364/449, 364/457, 364/459, 73/178R, 342/357, 342/358, 342/457

PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

Search Selected

Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>4445118</u>	April 1984	Taylor et al.	342/357
<input type="checkbox"/>	<u>4613864</u>	September 1986	Hofgen	342/357
<input type="checkbox"/>	<u>4646096</u>	February 1987	Brown	342/358
<input type="checkbox"/>	<u>4751512</u>	June 1988	Longaker	342/457
<input type="checkbox"/>	<u>4814711</u>	March 1989	Olsen et al.	364/449
<input type="checkbox"/>	<u>4894662</u>	January 1990	Counselman	342/357
<input type="checkbox"/>	<u>5017926</u>	May 1991	Ames et al.	342/357
<input type="checkbox"/>	<u>5099245</u>	March 1992	Sagey	342/357

ART-UNIT: 234

PRIMARY-EXAMINER: Chin; Gary

ATTY-AGENT-FIRM: Schatzel; Thomas E.

## ABSTRACT:

An embodiment of the present invention is a shipboard GPS positioning system having data links to outlying tailbuoys equipped with respective GPS receivers. On ship, an Intel 386-based microcomputer system collects data from various ship's equipment including the ship's GPS receiver and data from the several tailbuoy units. A computer-implemented

process located in the microcomputer system controls the following processes.

Periodically each GPS receiver produces updated pseudo ranges (PRs) and these are time-tagged. The time-tagged PRs for the ship are aligned according to their time tags with their counterpart PRs from the tailbuoys. The raw PRs are then passed through a Kalman mathematical filter to produce filtered pseudo-ranges (PRs). A position solution is then attempted for each GPS receiver using the PRs. The filters provide statistical data that is used to rate the quality of each PR in a weighted least squares solution process. Special measures are included to provide quality control/quality assurance, including the use of error ellipses on the display to present a graphic indication of expected solution accuracy, and the use of real time fault detection, isolation, and correction algorithms when redundant satellite information is available.

10 Claims, 14 Drawing figures

**WEST****End of Result Set**

Generate Collection

L13: Entry 8 of 8

File: USPT

Aug 4, 1987

US-PAT-NO: 4685068

DOCUMENT-IDENTIFIER: US 4685068 A

TITLE: Generic database generator system and method

DATE-ISSUED: August 4, 1987

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Greco, II; Joseph A.	Silver Spring	MD	N/A	N/A
Hawkins; Donald K.	College Park	MD	N/A	N/A
LeGrys; Scott R.	Burtonsville	MD	N/A	N/A
Kit Man; Wai	Silver Spring	MD	N/A	N/A

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
The Singer Company	Silver Spring	MD	N/A	N/A	03

APPL-NO: 6/ 767733

DATE FILED: August 20, 1985

INT-CL: [4] G06F 15/66, H04N 1/46, G06K 9/46

US-CL-ISSUED: 364/518; 358/75, 382/1, 382/17

US-CL-CURRENT: 382/157; 358/505, 382/165

FIELD-OF-SEARCH: 364/518, 364/521, 364/522, 364/526, 358/75, 358/78, 358/903, 382/1, 382/17, 382/18, 340/715, 340/703

## PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

Search Selected

Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	3930237	December 1975	Villers	364/518 X
<input type="checkbox"/>	4205389	May 1980	Hearty	364/521 X
<input type="checkbox"/>	4270141	May 1981	Sakamoto	358/78
<input type="checkbox"/>	4477829	October 1984	Ziran et al.	382/17 X
<input type="checkbox"/>	4489389	December 1984	Berkwith et al.	364/518 X

## FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
2019336A	October 1979	GBX	364/521

## OTHER PUBLICATIONS

"Defense Mapping Agency (DMA) Policy for Digital Mapping, Charting, and Geodesy (MC&G) Support of Advanced Systems", B. D. Shelkin, 6th Interservice ITEC, Oct. 1984, pp.

99-102.

"A Fast Parallel Algorithm for Thinning Digital Patterns" T. Y. Zharg and C. Y. Suen, Communications of the ACM, Mar. 1984, pp. 236-239.

"Mapping the Swannee River", D. O. Morgan and W. E. Smith, Computer Graphics World, Jul. 1984, pp. 20-26.

"Municipal Mapping in Saudi Arabia", F. L. Hannigan, Computer Graphics World, Jul. 1984, pp. 37-41.

ART-UNIT: 211

PRIMARY-EXAMINER: Perkey; W. B.

## ABSTRACT:

System and method for processing information from a paper map source to produce an accurate high resolution digitized map database in matrix format having separate files for each selected feature. The system and method scans the input paper map source and processes the scanned data into a digitized map database in matrix format with distinct and selectable features as are represented on the input map. Selected features include vegetation, hydrography, lines of communication, miscellaneous features, and terrain elevation. The use of separate files significantly reduces the processing time required by application programs used to analyze or display the data relating to a particular feature.

30 Claims, 20 Drawing figures

**WEST**

Generate Collection

L14: Entry 3 of 10

File: USPT

Aug 17, 1999

US-PAT-NO: 5938721

DOCUMENT-IDENTIFIER: US 5938721 A

TITLE: Position based personal digital assistant

DATE-ISSUED: August 17, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dussell; William O.	Pescadero	CA	N/A	N/A
Janky; James M.	Los Altos	CA	N/A	N/A
Schipper; John F.	Palo Alto	CA	N/A	N/A
Cowl; David J.	Sunnyvale	CA	N/A	N/A

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Trimble Navigation Limited	Sunnyvale	CA	N/A	N/A	02

APPL-NO: 8/ 738983

DATE FILED: October 24, 1996

INT-CL: [6] G01C 21/00, G06F 165/00

US-CL-ISSUED: 701/211; 701/213

US-CL-CURRENT: 701/211; 701/213

FIELD-OF-SEARCH: 701/1, 701/211, 701/213, 701/300, 342/357, 342/457, 340/995, 340/996, 364/705.05, 364/705.07, 364/705.08

PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

☐ Search Selected☐ Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>5032083</u>	July 1991	Friedman	434/112
<input type="checkbox"/>	<u>5311194</u>	May 1994	Brown	342/357
<input type="checkbox"/>	<u>5444444</u>	August 1995	Ross	340/994
<input type="checkbox"/>	<u>5457629</u>	October 1995	Miller et al.	701/1
<input type="checkbox"/>	<u>5470233</u>	November 1995	Fruchterman et al.	434/112
<input type="checkbox"/>	<u>5559707</u>	September 1996	Delorme et al.	364/443
<input type="checkbox"/>	<u>5576687</u>	November 1996	Blank et al.	340/438
<input type="checkbox"/>	<u>5646629</u>	July 1997	Loomis et al.	342/357
<input type="checkbox"/>	<u>5682525</u>	October 1997	Bouve et al.	395/615
<input type="checkbox"/>	<u>5699244</u>	December 1997	Clark, Jr. et al.	364/420
<input type="checkbox"/>	<u>5732074</u>	March 1998	Spaur et al.	370/313
<input type="checkbox"/>	<u>5790974</u>	August 1998	Tognazzini	701/204

ART-UNIT: 361  
PRIMARY-EXAMINER: Zanelli; Michael J.  
ATTY-AGENT-FIRM: Blakely, Sokoloff, Taylor & Zafman LLP

## ABSTRACT:

A task description is stored in a database accessible by a mobile computer system. The mobile computer system receives positioning information corresponding to its geographic location and indexes the database based on the positioning information when the information indicates that the mobile computer system is in a geographic location that facilitates completion of a task associated with the task description. The database may be resident in the mobile computer system or accessible in other ways, for example, via the Internet. The task description preferably includes a geocode which corresponds to the geographic location at which completion of the task may be facilitated. The task description may also include textual, voice or other message which can be displayed and/or played back to a user. The positioning information may be obtained from a GPS satellite, a GLONASS satellite or a pseudolite. The mobile computer system may be a portable unit, such as a PDA, or integrated within a vehicle.

35 Claims, 2 Drawing figures

**WEST**

Generate Collection

L14: Entry 9 of 10

File: USPT

Nov 28, 1995

US-PAT-NO: 5470233

DOCUMENT-IDENTIFIER: US 5470233 A

TITLE: System and method for tracking a pedestrian

DATE-ISSUED: November 28, 1995

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Fruchterman; James R.	Palo Alto	CA	N/A	N/A
Schwegler; William C.	San Jose	CA	N/A	N/A
Merritt; Bruce W.	Palo Alto	CA	N/A	N/A
LaPierre; Charles	Ottawa	N/A	N/A	CAX

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Arkenstone, Inc.	Sunnyvale	CA	N/A	N/A	02

APPL-NO: 8/ 210239

DATE FILED: March 17, 1994

INT-CL: [6] G09B 21/00

US-CL-ISSUED: 434/112; 434/116, 434/365, 340/825.19, 340/825.49, 364/449

US-CL-CURRENT: 434/112; 340/825.19, 340/825.49, 434/116, 434/365, 701/213

FIELD-OF-SEARCH: 434/112, 434/116, 434/308, 434/365, 340/825.19, 340/825.36, 340/825.49, 364/424.01, 364/443, 364/449, 364/450, 364/460, 364/578

PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

Search Selected

Search ALL

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/> 4694494	September 1987	Woolfson	434/112 X
<input type="checkbox"/> 4731613	March 1988	Endo et al.	364/450 X
<input type="checkbox"/> 5032836	July 1991	Ono et al.	340/825.19 X
<input type="checkbox"/> 5117363	May 1992	Akiyama et al.	364/449
<input type="checkbox"/> 5119301	June 1992	Shimizu et al.	364/450
<input type="checkbox"/> 5189430	February 1993	Yano et al.	364/449 X
<input type="checkbox"/> 5225842	July 1993	Brown et al.	342/357
<input type="checkbox"/> 5343399	August 1994	Yokoyama et al.	364/449
<input type="checkbox"/> 5345388	September 1994	Kashiwazaki	364/449
<input type="checkbox"/> 5371497	December 1994	Nimura et al.	364/449 X

## FOREIGN PATENT DOCUMENTS



FOREIGN-PAT-NO  
0583214

PUBN-DATE  
February 1994

COUNTRY  
EPX

US-CL  
434/112

## OTHER PUBLICATIONS

"Active Localization of Virtual Sounds" By Loomis et al, The Journal of the Acoustical Society of America, vol. 88, No. 4, Oct. 1990, pp. 1757-1764.  
"An Interdisciplinary Concurrent Design Methodology as Applied to the Navigator Wearable Computer System" by Daniel P. Siewiorek, et al., Abstract with 3 figures, 1993.  
EtakMap.RTM. database product brochure, May 1992.  
"Sony Mobile Navigation System Technology Description", Sony News and Information, Feb. 8, 1994.  
"Global Explorer", DeLorme Mapping Brochure, 1993.  
"Better Than a Cane", Discover, Oct. 1993, pp. 20-21.

ART-UNIT: 332  
PRIMARY-EXAMINER: Cheng; Joe H.  
ATTY-AGENT-FIRM: Knobbe, Martens, Olson & Bear

## ABSTRACT:

The present invention is a global positioning system that helps a blind pedestrian navigate through a city. This system uses the Department of Defense Global Positioning System (GPS) and a Differential GPS receiver to determine a pedestrian's longitude and latitude. Once these coordinates have been determined, they are correlated with a computerized map database. The map database holds the names and coordinates of specific locations, such as intersections, in a particular region. The system of the present invention retrieves the names of locations from the map database that are near the pedestrian. These names are then output to a voice synthesizer.

27 Claims, 8 Drawing figures